Claims

1. Cantilever assembly (1) for scanning a sample (3), comprising a cantilever (10) having a cantilever tip (11), the cantilever (10) being mounted to a rigid support (12,120,121) and being provided on its back side facing away from the sample (3) with an area (110) of a high reflectance material, this area having a boundary (111) sloping towards the support (12), characterized in that the extensions (c,Δc) of the area (110) and of the boundary (111) towards the support fulfil the condition

$$c/\Delta c \geq 1,$$

wherein

c denotes the extension of the area (110) of the high reflectance material in the direction towards the support (12), and

Δc denotes the extension of the sloped boundary (111) of the area (110) of the high reflectance material in the direction towards the support (12).

2. Cantilever assembly (1) according to claim 1, wherein the length of the cantilever (10) is in the range of 1 µm to 100 µm, in particular in the range of 3 µm to 20 µm, and wherein the extension (c) of the area (110) of the high reflectance material towards the support (12) is in the range of 0.5 µm to 10 µm, in particular in the range of 1 µm to 6 µm.

3. Cantilever assembly (1) according to claim 1 or

claim 2, wherein the support (12) is provided with a sharp edge (120a) that is located a distance (l) from the back side of the cantilever tip (11), the distance (l) being determined such that during application of the high reflectance material the area (110) on the back side of the cantilever tip (11) and the sloping boundary (111) are formed.

4. Cantilever assembly (1) according to any one of the preceding claims, wherein the support (12) further comprises a guidance and calibration structure (123,123a,123b,123c) for guiding and calibrating an optical tracking system in focusing on the area (110) of the high reflectance material.

5. Cantilever assembly (1) according to any one of the preceding claims, wherein that portion (120) of the support (12) to which the cantilever (10) is attached has a recessed, in particular a partly-octagonal shape, the said recessed shape narrowing in the direction towards the cantilever (10).

6. Cantilever assembly (1) according to any one of the preceding claims, wherein the cantilever (10) comprises a step-like portion (100) which is arranged near that end of the cantilever (10) which is attached to the support (12,120), the said step-like portion (100) substantially increasing the thickness of the cantilever (10) on the front side of the cantilever (10).

7. Cantilever assembly (1) according to any one of the preceding claims, wherein the support (12) comprises at least two steps, the steps (120,121) being provided with an edge (120a,121a), wherein the edge (120a) of the first step (120) is located such that during application of the high

reflectance material the area (110) on the back side of the cantilever tip (11) and the sloping boundary (111) are formed and wherein the edge (121a) of the second step (121) is located such that it does not obstruct application of the high reflectance material.

8. Process for manufacturing a cantilever assembly (1) according to any one of the preceding claims, comprising applying from a source (S) of a high reflectance material the area (110) of the high reflectance material and the sloping boundary (111) to the back side of the cantilever tip (11), characterized in using a sharp edge (120a) of the support (12) of the cantilever assembly (1) in order to limit the extensions (c,Δc) of the area (110) and of the boundary (111) towards the support (12).

9. Process according to claim 8, wherein the edge (120a) of the support (12) is located at a distance (l) from the area (110) on the back side of cantilever tip (11) and wherein source (S) of the high reflectance material is arranged at a distance (L) from the edge (120a) of the support (12) and has an opening having a diameter (d), through which the high reflectance material is applied, and wherein the distance (l) from the area (110) on the back side of cantilever tip (11) and the edge (120a) of the support (12) and the distance (L) from the source to the edge (120a). of the support (12) are determined such, that

$$\Delta c / l = d / L$$

wherein

Δc denotes the extension of the boundary (111) of the area (110) of the high reflectance material towards the support (12)

l denotes the distance of the edge (120a) of the support (12) from the area (110) of the high reflectance material,

d denotes the diameter of the opening of the source (S) through which the high reflectance material is applied, and

L denotes the distance between the source (S) and the edge (120a) of the support (12).